Herpes Family Viruses and Other Infectious Scleritis

Arash Maleki, MD and Foster CS, MD, FACS, FACR

Scleritis is an important but under-appreciated ocular inflammatory problem, and even when the ophthalmologist encounters a patient with scleritis and fully appreciates the potential seriousness of that problem he or she, more often than not, will think primarily of auto-immune phenomena as the likely culprits for having stimulated the inflammation in the sclera.

In view of the largest studies of a patient group with scleritis ever performed, we found that infectious agents accounted for a surprising number of cases in that series (7%). In our series of 172 patients with scleritis, four patients had primary bacterial scleritis, (one secondary to Proteus, one secondary to staphylococcus aureus, one secondary to Mycobacterium tuberculosis and one was secondary to syphilis. One of our 172 patients had scleritis secondary to fungus (aspergillus fumigatus). Two of our 172 patients had scleritis secondary to herpes zoster infection (an additional patient had episcleritis), and two had scleritis secondary to herpes simplex virus (an additional patient had episcleritis). One patient's nodular scleritis was secondary to the parasite, acanthamoeba.

Each of these patients' inflammatory process had been recurrent or in fact worsening with steroid therapy, and cessation of the problem was associated with definitive establishment of the specific microbial cause of the scleritis, and definitive treatment of same.

Although immune-mediated diseases are the main disorders associated with scleritis, less common etiologies such as infectious scleritis should be kept clearly in mind. Infectious scleritis should be especially suspected in cases of indolent, progressive scleral necrosis with suppuration, especially if the past history discloses any evidence of trauma, including surgical trauma.

Scrapings for smears and cultures are usually negative and scleral biopsy, with culture and histopathologic examination with special stains and/or polymerase chain reaction analysis of extracted DNA is usually required for definitive diagnosis.

Tran and colleagues described chronic and recurrent ocular complications associated with VZV, noting that approximately one-quarter of cases experienced recurrences over a five-year period. Conjunctivitis and scleritis were more common at initial presentation, whereas keratitis and uveitis tended to occur more frequently during recurrences. When the patient develops delayed-onset iritis, conjunctivitis, scleritis, and ocular hypertension, the immune-related reaction is very likely. The strong response to

systemic corticosteroids suggests the immune-mediated component. Supporting this, prior histopathologic examination of an eye affected by herpes zoster ophthalmicus demonstrated chronic inflammatory cell infiltration around the long posterior ciliary arteries and nerves. Additionally, uveitis has been reported following vaccination with a recombinant herpes zoster vaccine. Overall, these findings suggest that inflammation may arise from a complex interplay between viral infection and immune response.

In conclusion, scleritis and episcleritis associated with herpes family viruses (HSV-1, HSV-2, EBV, and VZV) may involve both active infection and immune-mediated mechanisms. Accurate identification of a viral etiology is therefore essential for appropriate management. Once confirmed, long-term prophylactic antiviral therapy is often recommended. Recurrence despite antiviral treatment may indicate the need for immunomodulatory therapy, although antiviral resistance should also be considered as a potential cause.

References

1) Maleki A, Patel PD, Colombo A, Foster CS. Results of long-term antiviral prophylactic treatment on the course of herpes zoster ophthalmicus with ocular involvement: A case series in a tertiary uveitis clinic - A 1-year follow-up. Taiwan J Ophthalmol. 2023;15(1):114-119.
2) Takai Y Sr, Yamagami A, Iwasa M, Inoue K, Wakakura M. A Case of Herpes Zoster Ophthalmicus With Multiple Delayed Ocular Complications. Cureus. 2023;15(4):e37134.
3) Sainz de la Maza M, Molina N, Gonzalez-Gonzalez LA, Doctor PP, Tauber J, Foster CS. Clinical characteristics of a large cohort of patients with scleritis and episcleritis. Ophthalmology. 2012 Jan;119(1):43-50.
4) Sainz de la Maza M, Tauber J, Foster CS. *The sclera*. 2nd ed. Springer; 2012.
5) Tran KD, Falcone MM, Choi DS, Goldhardt R, Karp CL, Davis JL, Galor A: Epidemiology of herpes zoster ophthalmicus: recurrence and chronicity. Ophthalmology. 2016,123:1469-75.

Revised April 2026